

Meet Your Needs with CUSTOM SOFT JAWS

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Did you know that many chuck manufacturers offer nylon, customizable jaw blanks? At about 1" (25mm) thick, the blanks can be custom-shaped to suit your specific chucking needs, whether for a one-off piece or for repeated use.

A benefit of these soft jaws is that they come pre-drilled and with a circular tenon that registers precisely in the channel in the chuck jaw slides (*Photo 1*). This mechanical fit improves holding security because you are not relying on the strength of the screws alone. You can also achieve nearly full-diameter contact with the workpiece, since you can size the jaws to your exact diameter requirement. This allows the nylon material to hold most woods securely and without marring.

Take note: Most chucks have jaw fixings unique to the manufacturer. So with few exceptions, you will need to stick

with the soft jaws offered by your chuck's manufacturer for your chuck model.

Customize the jaws

The first step is to mount your nylon jaws on the chuck. Using the chuck key, partially open the jaw slides. Align the jaw screw holes to the holes in the slides. Then carefully fit a jaw onto a slide by positioning the jaw's tenon into the slot in the slide. Chuck manufacturers typically make these soft jaws to a close tolerance, so you may need to tap the jaw with a mallet to make it fit. Tighten the screws finger tight, and repeat for each jaw segment. Use the chuck key to close the jaws until all are touching with equal pressure. Then snug up the mounting screws. There should be no gap between the back of the jaw and the top of the jaw slide (*Photo 2*).

Before forming a custom recess or tenon, clamp down on a short dowel

with the jaw slides—not with the jaws themselves. Size the dowel so it will create a slight gap between the jaws of about 1/8" (3mm). The dowel should not touch the bottom of the soft jaws and be short enough not to interfere when threading the chuck on the lathe spindle (*Photo 3*). Clamping a dowel keeps the jaws firmly in place as you cut into them.

You can form parallel sides or a dovetail shape as appropriate for your project. For a straight-sided recess, I use a square-edge, negative-rake scraper (*Photo 4*). A skew presented flat works well for cutting a dovetail. Be careful not to cut so deep that you hit the screw heads. Before removing your new jaws, number each one on the outside to match the jaw slide number to ensure the best fit when remounting them.

In use

It is possible to cut one set of jaws for more than one holding task. You can use the outside edge for expansion and a recess in the middle for compression (*Photo 5*). When turning, keep the tool-rest as close to the work as possible, and take light cuts with sharp tools. Run the lathe slower than you would with steel jaws (under 1000 rpm). As with most workholding scenarios, use tailstock support when possible for added safety. ■

Mike Peace is active in three Atlanta-area woodturning chapters and is a frequent demonstrator. For more, visit mikepeacewoodturning.blogspot.com and his YouTube channel, Mike Peace Woodturning.

Mount the jaws



(1) Nylon jaws are machined to match the jaw slides precisely for extra strength.

(2) Ensure the nylon jaws mount flat with no gap between the back of the jaws and the jaw slides.

Clamp a temporary dowel



Before turning the nylon jaws to shape, clamp a dowel in the jaw slides.

Customize the jaws



It is easy to turn nylon jaws to your needs using regular turning tools. Here, a negative-rake scraper forms a straight-sided recess.

Versatile workholding



These jaws can do double duty. The author has formed a dovetail on the outer edge for use in expansion mode and a recess in the middle for use in compression mode.